THE GENUS *PRENANTHES* (ASTERACEAE: LACTUCEAE) IN TEXAS

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ABSTRACT

Three species of *Prenanthes* occur in Texas. *Prenanthes carrii* Singhurst, O'Kennon, & Holmes is described as a new species endemic to the Edwards Plateau vegetational region. *Prenanthes altissima* is known only from Jasper and Newton counties in extreme southeastern Texas. *Prenanthes barbata* is more widespread but rare in rich hardwood and pine-oak forests in the Pineywoods of eastern Texas, with one record in the Post Oak Savannah of Lamar County. A key to species, descriptions, distribution map, and lists of exsiccatae are included.

RESUMEN

En Texas hay tres especies de *Prenanthes*. Se describe *Prenanthes carrii* Singhurst, O'Kennon, & Holmes como especie nueva endémica de la región de vegetación de Edwards Plateau. *Prenanthes altissima* se conoce únicamente de los condados de Jasper y Newton en el extremo sureste de Texas. *Prenanthes barbata* es más frecuente pero raro en los bosques de madera dura y de pino-roble en los pinares del este de Texas, con una cita en la sabana de Post Oak del condado de Lamar. Se incluye una clave de especies, descripciones, mapas de distribución, y listas de exsicatas.

INTRODUCTION

Correll and Johnston (1970) recognized two species of *Prenanthes* L. in Texas. One, *P. altissima* L. was identified from three specimens all collected the same year from the same location in Newton County. *Prenanthes barbata* (T. & G.) Milstead ex Cronquist was identified from two specimens, one each from Jasper and Nacogdoches counties. By 1993 knowledge of the genus in Texas was based upon seven additional collections of *P. barbata* and two additional collections of *P. altissima*. In 1993 and 1994 Singhurst (1996) conducted a status survey of *P. barbata* in Texas that increased the understanding of its distribution and habitat restrictions. That survey prompted the present expanded study.

The purpose of the present paper is to (1) describe a new species of *Prenanthes* from the Edwards Plateau vegetational region of Texas, (2) report the additional information regarding the Texas distribution of *P. altissima* and *P. barbata*, (3) provide a key to distinguish the three species in Texas and (4)

remark on the rarity and abundance of all species treated. Field research and collections made between 1993 and 2003 form the primary basis of this study. The majority of specimens collected are deposited in the Baylor University Herbarium (BAYLU). Other specimens from ASTC, BRIT, LAMU, Rice University Herbarium, Houston Texas (hereafter cited as RICE), SBSC, TAES, TAMU, TEX-LL, US, and the personal herbarium of Steve Orzell and Edwin Bridges were examined and annotated.

Cultivation studies of both *P. barbata* (1993–1994) and *P. altissima* (1998) were conducted at the Stephen F. Austin Arboretum and Tucker Estate, Nacogdoches, Texas. The new species was cultivated in 2003 at the residence of O'Kennon in Fort Worth. Though limited, these cultivation studies provided growth form information that was otherwise unavailable.

TAXONOMIC TREATMENT

Prenanthes L., Sp. Pl. 797–798. 1753.

Nabalus Cass., Dict. Sc. Nat. 34:94. 1825.

Perennial herbs with milky juice and tuberous roots. Leaves alternate, simple and entire to toothed to few-lobed or deeply cleft, or lower ones sometimes several-foliate. Capitula mostly numerous in an elongate, erect and often nodding paniculiform capitulescence; flowers ligulate, perfect, 5–15 in number, white, yellow-white, to greenish-white; involucres cylindric, of 4–8 principal phyllaries, the outer phyllaries (bracts) much reduced; receptacles epaleate. Cypselae cylindric or nearly so, glabrous, mostly reddish-brown, multicostate; pappus of numerous deciduous capillary bristles.

Prenanthes is a genus of approximately 40 species (Rao & Datt 1996) with a predominantly north temperate distribution except for one species of south central Africa (Milstead 1964). Two subgenera are recognized. Subgenus *Nabalus* includes all species of North America and northeast Asia, while the European and African species are in subgenus *Prenanthes*. Classification of the genus is complicated by frequent hybridization and by extreme morphological variation (Cronquist 1980).

Plants of the genus are commonly known as rattlesnake root, cankerweed, or gall of the earth. The name *Prenanthes* is from Greek *prenes* (drooping) and *anthe* (flower). This name refers to the nodding habit of the capitula.

KEY TO THE SPECIES OF *PRENANTHES* IN TEXAS

1. Capitula 5–6 flowered; involucres with 5–6 principal phyllaries, glabrous _____ **P. altissima**
1. Capitula 10–15 flowered; involucre with 6–8 principal phyllaries, pubescent with long coarse hairs.
   2. Lower and midstem leaves shallowly or deeply pinnately lobed, the upper lanceolate to oblong; petioles usually shorter than the blades; capitulescence racemose to slightly paniculate _____ **P. barbata**

2. Lower and midstem leaves sagittiform, the upper ovate to triangular-deltate; petioles usually longer than the blades, capitulescense paniculate _____ **P. carrii**

Prenanthes altissima L., Sp. Pl. 797. 1753. *Nabalus altissimus* (L.) Hook., Fl. Bor. Amer. 1:294. 1833. TYPE: LINN; IDC microfiche 177.536.III.1.

Prenanthes altissima L. var. *cinnamomea* Fern., Rhodora 10:95. 1908. TYPE: U.S.A. MISSOURI: Monteer, 5 Oct 1905, *Bush 3534* (HOLOTYPE: GH).

Perennial herbs from a thick and knotty corm-like taproot. Stems erect to 200 cm tall, glabrous, striate, the upper portions not branched or rarely so, leafy towards the base and sparse to leafless in the immediate vicinity of the capitulescence. Leaves ovate to triangular, 3–5 lobed, 2–14 × 1.5–12 cm, the lower ones sometimes withered before anthesis but can also be present; venation pinnate, with 4–6 pairs of prominent secondary nerves separating from the midvein at an angle of ca. 45°, the nerves arcuate, tertiary and quartenary nerves reticulate, surfaces glabrous to villous; bases widely cordate to an obtuse insertion at the petioles, margins dentate, the teeth 0.5–1 cm distant, apices acute to acuminate; petioles 0.5–8.5 cm long, wingless throughout its length; upper leaves reduced in size; deltoid to reniform, shortly petiolate, margins slightly dentate. Capitulescene paniculate, heads disposed in loose axillary clusters in upper axils, 20–28 cm tall. Capitula slender, 12–15 mm long; peduncles to 2–3 mm long, puberulent; bracts (outer phyllaries) lanceolate to ovate, 1–2 mm long, apices acuminate, margins puberulent; primary phyllaries 5, 10–12 mm long, lanceolate, green to lilac, apices acuminate, glabrous. Florets white, 5–6 in number, 10–11 mm long, tubes ca. 6 mm long, ligules 5 mm long, 5-nerved, teeth 5, linear, sparingly glandular, surfaces glabrous, anthers 4 mm long; stigmatic surfaces densely hispid to setose. Cypselae obscurely 5-angled, 5 mm long, golden-brown. Pappus bristles ca. 40–50, yellow-brown, ca. 8–9 mm long, margins finely scabrid.

Distribution.—Known only from Jasper and Newton counties in extreme southeast Texas (Fig. 1); also Quebec to Maine, S to Georgia, Tennessee, Kentucky, Arkansas, and Louisiana.

Phenology.—Flowering from late August through October.

Specimens examined. **TEXAS. Jasper Co.:** Sally Withers Lake area, Autumn 1974, *Watson s.n.* (RICE). **Newton Co.:** FR 1414 about 3 mi SE of Burkeville, 23 Mar 1969, *Correll 36864* (TEX-LL); FR 1414 about 3 mi SE of Burkeville, 15 Oct 1969, *Correll 38172* (TEX-LL); FR 1414, about 3 mi SE of Burkeville, 29 Oct 1969, *Correll & Correll 38217* (TEX-LL); Scrappin Valley, 25 Oct 1974, *Watson s.n.*; Scrappin Valley Preserve, Temple Inland Property, 12 mi NNE of Burkeville, 2 Apr 1998, *Singhurst & Watson 6548* (BAYLU); jct. FM 645 and Hickman Creek, W on Hickman Creek 0.4 mi, 3 Apr 1998, *Singhurst & Watson 6559* (BAYLU); Canyon Rim Trail, Tex. Hwy 87, 0.5 mi N of Mayflower Community, 30 Sep 2001, *Holmes 11997 & Singhurst* (BAYLU); Louisiana Pacific Corp. Nature Trail, 4 mi N of jct. of Tex. Hwy 87 and R255 on Hwy 87, 23 Sep 2003, *Singhurst 12494* (BAYLU); Tex. Hwy 87, 2.1 mi S of jct. with Tex. Hwy 63, SE on Co. Rd. 2.7 mi to Simms Cemetery, Yellow Bayou bluffs and banks, 23 Sep 2003, *Singhurst 12494* (BAYLU).

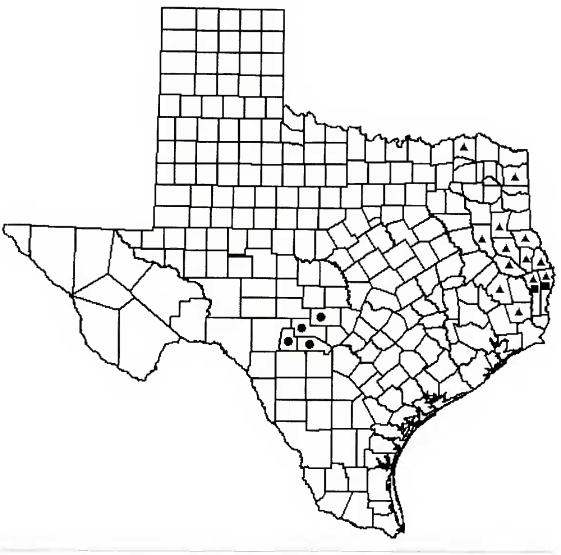

Fig. 1. Distribution map of the genus *Prenanthes* in Texas. *Prenanthes altissima* ■, *P. barbata* ▲, and *P. carrii* ●.

Prenanthes altissima is known from seven locations in the northern portion of Jasper and Newton counties. These locations are the southwestern limit of *P. altissima*'s distribution in Texas. Outside Texas, the nearest documented occurrences are approximately 120 km distant in Evangeline and Rapides parishes, Louisiana (Thomas & Allen 1996). The nearest Arkansas population (Smith 1979) is about 320 km distant. In Texas the species occurs on primary and secondary terraces along stream banks of small perennial spring-fed creeks and banks of larger streams with flood plains that support hardwood forests. *Prenanthes altissima* is associated with *Fagus grandifolia, Magnolia grandiflora, Acer barbatum, Quercus alba, Hamamelis virginiana, H. vernalis, Lindera benzoin, Lilium michauxii, Tipularia discolor, Sanguinaria canadensis, Polygonatum biflorum, Polystichum acrostichoides, Thelypteris hexagonoptera, Trillium gracile, Spigelia marilandica, Solidago auriculata*, and *S. caesia*.

Cronquist (1980) recognized two varieties of *Prenanthes altissima*, var. *altissima* with whitish to pale brown pappus, occupying the greatest part of the distribution of the species, and var. *cinnamomea* of Missouri, Arkansas, Louisiana, and, though not cited by Cronquist, presumably Texas. This variety is characterized by bright yellow-brown or almost orange pappus. Gandhi and Thomas (1989) used this varietal name to refer to the Louisiana forms of this taxon. However, Thomas and Allen (1996) merged var. *cinnamomea* with var. *altissima* in the *Atlas of the Vascular Flora of Louisiana*. Color variation of the pappus does not appear to justify recognition at the varietal level.

Prenanthes barbata (Torr. & A. Gray) W.L. Milstead ex A. Cronquist. Brittonia 29:223. 1977. *Nabalus fraseri* DC. var. *barbatus* Torr. & A. Gray, Fl. N. Amer. 2:481. 1843. *Prenanthes serpentaria* Pursh var. *barbata* (Torr. & A. Gray) A. Gray, Syn. Fl. N. Amer. 1(2): 434. 1886. *Nabalus barbatus* (Torr. & A. Gray) Heller, Muhlenbergia 1:8. 1900. *Nabalus serpentaria* Pursh var. *barbatus* (Torr. & A. Gray) Mohr, Contr. U.S. Natl. Herb. 6:755. 1901. TYPE: U.S.A. ALABAMA: *Buckley s.n.* (SYNTYPE: GH; ISOSYNTYPE: NY). The GH specimen is here designated as lectotype. The other syntype cited, *Macbride s.n.* from the Saluda Mountains of [Polk Co., North Carolina], was not located but from location seems to refer to *P. serpentaria* Pursh.

Perennial herbs from thick corm-like taproots, occasionally connected by slender rhizomes. Stems erect, 50–150 cm tall, simple below, glabrous, the upper portions often branched, glabrate to pilose to hispid to semiarachnose to villous, leafy except in the immediate vicinity of the capitulescence. Leaves oblanceolate to spatulate, 5–20 × 1.5–5 cm, the lower ones usually withered before anthesis, venation pinnate, with 4–6 pairs of prominent secondary nerves separating from the midvein at an angle of ca. 45 degrees, the nerves straight to arcuate, tertiary and quartenary nerves reticulate, surfaces glabrate to sparingly puberulent-pilose; bases attenuate, the lower to long winged petioles, margins entire to denticulate to dentate to lacerate-parted (especially lower leaves), the teeth 1–2 cm distant, apices acute to rounded; petioles 0.5–6.5 cm long, winged for most of its length; upper leaves reduced in size; elliptic to oblanceolate, sessile to shortly petiolate, margins mostly entire to denticulate to less commonly dentate to lacerate-lobed at the bases. Capitulescene racemose to paniculate, 5–36 cm tall. Capitula cylindric to semicampanulate; peduncles to ca. 1 cm long, glabrate to tomentose to villous; bracts (outer phyllaries) lanceolate to narrowly ovate, 2–5 mm long, apices acuminate, margins subentire, midribs with few to numerous coarse bristles; primary phyllaries 6–8, 13–16 mm long, linear-oblong to narrowly lanceolate, green to purplish, apices acute to rounded to an acute point, finely puberulent, occasionally with glandular hairs, margins entire, midribs with few to numerous coarse bristles. Florets white, 10–12 in number, 12–13 mm long, tubes ca. 5–6 mm long, ligules 5–6 mm long, 5-nerved, teeth 5, linear, sparingly glandular, surfaces glabrous, anthers 5–5.5 mm long; stigmatic surfaces setose-hispid. Cypselae obscurely 5-angled, 5–5.5 mm long,

golden-brown. Pappus bristles ca. 50, white to yellow-brown, ca. 8 mm long, margins scabrid.

Distribution.—Eastern Texas from Hardin County north to Lamar County (Fig. 1); also Alabama, Arkansas, Georgia, Kentucky, Louisiana, and Tennessee.

Phenology.—Flowering from late August through November.

Specimens examined **TEXAS. Angelina Co.:** Comp. 94, Angelina National Forest, ca. 0.7 mi S of junction of FS Rd 303 and FS Rd 302 on FS Rd 303, jct. of FS Rd 303 and Big Creek, 11 Nov 1994, *Singhurst 3609* (BAYLU). **Cass Co.:** ca. 0.4 air mi SW of jct. of Tex. Hwy 11 and Tex. Hwy 8 at Linden, 24 Oct 1994, *Singhurst 3404* (BAYLU). **Cherokee Co.:** ca. 0.5 air mi SE of jct. of U.S. Hwy 69 and FM 241, 17 Nov 1994, *Singhurst 3610* (BAYLU). **Hardin Co.:** W side of Silsbee near Mill Creek, Rd 327, 22 Sep 1971, *Watson 766, 767, & 768* (RICE); W of Silsbee on Tex. Hwy 327 near Mill Creek, 29 Sep 1971, *Amerson 806* (SMU). **Jasper Co.:** U.S. Hwy 96, ca. 2.0 mi S of Jasper, 10 Oct 1946, *Lundell & Lundell 14674* (TEX); ca. 3.5 mi SW of Jasper on FM 777, 4 Nov 1982, *Agilvsgi 8270* (TAMU); S of Walnut Run Creek on U.S. Hwy 96, 1.8 mi S of jct. U.S. Hwy 190 and 96 in Jasper, 29 Oct 1993, *Singhurst 3401* (BAYLU); roadside park ca. 1.6 mi S of U.S. Hwy 190 and 96 in Jasper, 13 Oct 1982, *Cheatham s.n.* (TEX). **Lamar Co.:** FM 906, 1.4 mi E of jct. of FM 906 and U.S. Hwy 271 at Mid City, 18 Oct 2002, *Singhurst & Harris 11345* (BAYLU). **Nacogdoches Co.:** ca. 8.0 mi NE of Nacogdoches, 4 Oct 1941, *Parks 1373* (TEX), *1372* (SMU); Tex. Hwy 21, 100 yards W of Loco Bayou, ca. 0.4 mi E of Co. Rd. 829, 21 Oct 1993, *Carr 13246* (TEX-LL); Little Loco Bayou, ca. 9.0 mi W of Nacogdoches on Tex. Hwy 21, ca. 2.1 air mi ESE of Winter Hill, 1994, 14 Oct 1993, *Singhurst 3406* (BAYLU); ca. 1.95 mi W of jct. of FM 95 and FM 1878, 5 Sep 1994, *Singhurst 3407* (BAYLU); ca. 9.2 mi NNE of Nacogdoches on U.S. Hwy 59, 4.5 mi SSW of Garrison on U.S. Hwy 59, 1 Nov 1993, *Singhurst s.n.* (BAYLU); ca. 4.2 mi NE of jct. of Loop 224 and FM 1878 in Nacogdoches on FM 1878, Carrizo Estates, 5 Sep 1994, *Singhurst 3408* (BAYLU); ca. 6.9 mi NW from jct. of U.S. Hwy 59 and FM 343 on FM 343, ca. 0.9 air mi ESE of Winter Hill, 5 Sep 1994, *Singhurst 3601* (BAYLU); Nacogdoches, W end of Spring Valley Drive, 5 Sep 1994, *Singhurst 3602* (BAYLU); Branch entering into Barnes Lake, ca. 1.5 air mi SW of Barnes Lake Dam, 5 Sep 1994, *Singhurst 3405* (BAYLU). **Newton Co.:** jct. of Clear Creek and U.S. Hwy 190, 7 Mar 2002, *Singhurst 11202* (BAYLU). **Polk Co.:** Morgan Creek, FM 1988, 2.6 mi SW of jct. Tex. Hwy 146 and FM 1988, 27 Sep 1994, *Singhurst 3403* (BAYLU). **Rusk Co.:** ca. 2.5 air mi NNE of jct. of Tex. Hwy 322 and U.S. Hwy 259, N of Henderson, 24 Oct 1994, *Singhurst 3402* (BAYLU). **Sabine Co.:** Comp. 66, Sabine National Forest, Matlock Hills, ca. 4.4 mi NE of jct. of Tex. Hwy 21 and FM 3153, 14 Aug 1994, *Singhurst 3606* (BAYLU); Comp. 69, Sabine National Forest, ca. 1.3 mi E of jct. of FS Rd 131 and FS Rd 131-A on FS Rd 131-A, ca. 2.1 air mi S of jct. of U.S. Hwy 87 and FS Rd 131, 14 Aug 1994, *Singhurst 3607* (BAYLU); Comp. 72, Sabine National Forest, ca. 3.4 mi from jct. of Tex. Hwy 21 and U.S. Hwy 87, ca. 0.5 air mi SW of Red Hills Lake, 14 Aug 1994, *Singhurst 3608* (BAYLU); Tex. Hwy 21, 5.9 road mi E of jct. FM 225 at Douglass, 12 Oct 1993, *Carr 13246* (TEX-LL). **San Augustine Co.:** Comp 65, Sabine National Forest, ca. 0.8 mi on FR that enters Comp. 65 from W, 14 Aug 1994, *Singhurst 3604* (BAYLU); ca. 3.5 air mi NNE of jct. of Attoyac River and Tex. Hwy 21, 14 Aug 1994, *Singhurst 3605* (BAYLU); Spring Ridge on Arenosa Creek, ca. 12 mi WNW of San Augustine, 29 Sep 2001, *Holmes & Singhurst 11970* (BAYLU). **Shelby Co.:** Sabine National Forest, Tenaha RD, Compartment 51, ca. 1.4 air mi NNW of jct. of FM 1279 and Tex. Hwy 147, 14 Aug 1994, *Singhurst 3400* (BAYLU); Comp. 51, Sabine National Forest, ca. 2.2 mi from jct. of FM 1279 and FM 147 on FM 147, 22 Apr 1987, *Orzell & Bridges 5126* (pers. herb.).

The distinctness of *Prenanthes barbata* was first recognized but never formalized by Milstead (1964). The name was subsequently adopted by Correll and Johnston (1970) and gained general acceptance; it was formalized by Cronquist in 1980.

The species was considered rare by Correll and Johnston (1970) because it was known only from Jasper and Nacogdoches counties. Turner et al. (2003) presented an expanded distribution in east central Texas that included six counties. Turner et al. also used the name to refer to plants of the Edwards Plateau which, in this study, are considered a distinct species. *Prenanthes barbata* occurs in mesic ravine slope forests that are dominated by *Fagus grandifolia-Quercus alba* series (Diamond et al. 1987) and on mesic hardwood sites with *Quercus shumardii*, *Q. muhlenbergii*, *Q. alba*, *Q. michauxii*, *Pinus taeda*, *Carya ovata*, and *C. myristicaeformis*.

Prenanthes carrii J.R. Singhurst, R.J. O'Kennon, & W.C. Holmes, sp. nov. (**Fig.2**). TYPE: U.S.A. TEXAS. BANDERA CO.: Lost Maples State Natural Area, above and below Upper Forks of Mystic Canyon Trail, 1 Sep 2003, *Singhurst & Singhurst 12496* (HOLOTYPE: BAYLU).

A *P. barbatae* similis sed foliis sagittiformibus differt.

Perennial herbs from tuberous tap roots with similar side roots. Stems simple, erect, occasionally rather long branched in area of inflorescence, 80–150 cm long, strigose to tomentose in upper half, scattered strigose to glabrous basally. Lower leaves sagittiform (ovate, ovate-deltate to broadly elliptic in general contour), 13–25 × 7–12 cm, light green, chartaceous, venation pinnate, with 3–5 pairs of prominent secondary nerves separating from the midvein at an angle of about 45 degrees, nerves straight to slightly antrorsely curved, tertiary and quartenary veins reticulate; surfaces glabrate to lightly puberulent-setose especially on nerves; bases attenuate, truncate to widely cordate, occasionally deeply pinnately divided at base near petioles, margins coarsely and irregularly dentate, mostly 1–2 cm distant, teeth subspinose-mucronate, apices acute to rounded; petioles 2.2–13 cm long, broadly winged for half or more of its length by the decurrent leaf bases; upper leaves reduced in size, elliptic, occasionally nearly sessile or with winged-decurrent petioles to about 1 cm long, otherwise similar to lower leaves; bracteal leaves reduced in size, less prominently dentate to occasionally subentire. Capitulescence paniculate, 20–50 cm tall; capitula cylindric to semicampanulate; peduncles, 4–9 mm long, tomentulose, with 5–12 or more linear-subulate to narrowly lanceolate hispid bracts (outer phyllaries) 2–4 mm long; primary phyllaries 8, 9–11 mm long, mostly lime green to pinkish-rose to lavender, linear-subulate to lanceolate, apices acuminate, outer surfaces glabrate except for the sparingly hispid midrib, apical margins minutely ciliate. Florets 9–11 per capitulum; 11.5–13.5 mm long, tubes 4–7 mm long, ligules ca. 7 mm long, 5-nerved, teeth 5, linear-oblong, 0.07–0.1 mm long, apical surfaces papillate; anthers ca. 5.5 mm long; stigmatic surfaces densely hispid-setose. Cypselae irregularly angled to more often terete, ca. 6.3 mm long, golden yellow to tan, prominently 12–15 costate. Pappus bristles white to tan to yellow, 7–8 mm long, 30–40, margins scabrid.

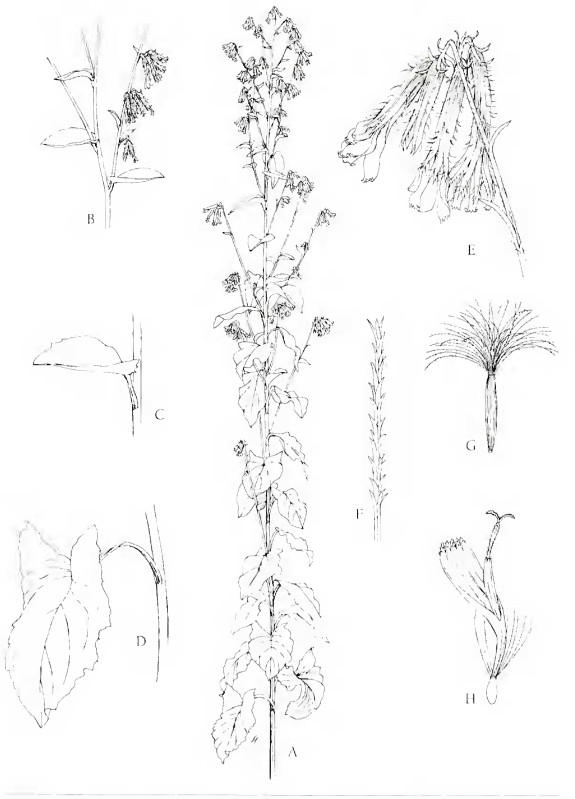

Fig. 2. *Prenanthes carrii*: **A.** habit, **B.** upper bracteal leaves, **C.** middle leaf, **D.** basal rosette leaf, **E.** florets, **F.** pappus, **G.** mature achene and **H.** immature achene with ligule/anther detail. Illustration by Linny Heagy 2004. Specimens used in illustration include a combination of *Singhurst* & *Singhurst 12496* (BAYLU) and *O'Kennon s.n.* (BAYLU).

Distribution.—Southwest Edwards Plateau (Bandera, Gillespie, Kerr, and Real counties) of Texas (Fig. 1.)

Phenology.—Flowering late August to November.

PARATYPES: TEXAS. **Bandera Co.:** Lost Maples State Natural Area, Upper Can Creek, 17 Nov 1999, *Singhurst 8533* (BAYLU); Love Creek Preserve, The Nature Conservancy of Texas, 2 Nov 2002, *Singhurst 11544* (HOLOTYPE: BAYLU). **Gillespie Co.:** 7 mi N of Harper in rich creek canyon off Threadgill Creek, Oct 1993, *O'Kennon 11914* (TEX-LL.) **Kerr Co.:** along rocky spring branch, Lacey's Ranch, 3 Oct 1916, *Palmer 10893* (US); without specific location, 13 Oct 1940, *Parks s.n.* (TAES); 12 mi S of Kerrville along Lamb Creek, Oct 1993, *O'Kennon 11898* (TEX-LL); 5.3 mi N of jct. of Kerr/Bandera County line on Tex. Hwy 16, Upper Lamb Creek, 17 Nov 1999, *Singhurst 8534* (BAYLU); cultivated [propagules from Upper Lambs Creek], 18 Oct 2002, *O'Kennon s.n.* (BAYLU). **Real Co.:** Lost Maples State Natural Area, 27 Oct 2001, *Singhurst 11526* (BAYLU); upper reaches of Mill Creek, Grey Wolfe Ranch, 2 Nov 2002, *Singhurst 11554* (BAYLU).

Prenanthes carrii is morphologically similar to *P. crepidinea* Michx., *P. alata* (Hook.) D. Dietr., *P. sagittata*, (A. Gray) A. Nels., *P. bootii* (DC.) D. Dietr, and *P. barbata*. This group was proposed as a new subsection in Milstead's (1964) unpublished (thus never formalized) dissertation. The group is characterized by paniculate to racemose capitulescences, leaves at least short petiolate, flowers white to creamy and usually numbering 7–38 per capitulum, inner phyllaries 6–15, and outer phyllaries (bracts) mostly 7–13 per capitulum. Leaf characteristics of *P. carrii* resemble the sagittiform shaped leaves of *P. alata*, *P. crepidinea*, and *P. sagittata*. The new species appears to be most closely similar to *P. barbata*, particularly in the paniculate nature of the capitulescence. The two species may be distinguished by the characters referenced in the key. Additional traits distinguishing *P. carrii* from *P. barbata* include its taller height of 80–150 cm, strigose to tomentose vestiture, and primary phyllaries 9–11 mm long. *Prenanthes barbata* is usually 55–125 cm tall, has tomentulose to subarachnose vestiture, and has primary phyllaries 11–14 mm long.

Prenanthes carrii occurs primarily in rich soils in woodlands at the upper reaches of canyons where springs flow due to geologic contacts. Where these contacts occur, there is a vegetation transition between the species of *Quercus laceyi*, *Q. muhlenbergii*, *Q. texana*, and *Acer grandidentatum* and the creekside seepage shelves dominated by *Platanus occidentalis*, *Cephalanthus occidentalis*, *Adiantum capillus-veneris*, *Thelypteris kunthii*, and *Cladium mariscoides*. The species is normally associated with *Aristolochia serpentaria*, *Carex edwardsiana*, *C. planostachys*, *Lindera benzoin*, *Senecio obovatus*, and *Verbesina virginica*. Other central Texas endemics occurring with or near *P. carrii* include *Chaetopappa effusa*, *Clematis texensis*, *Matelea edwardsensis*, *Philadelphus texensis*, *Tragia nigricans*, *Tridens buckleyanus*, and *Styrax platanifolius* var. *stellatus*.

Etymology.—The species is named in honor of William F. Carr of The Nature Conservancy of Texas. Bill is deeply committed to preserving the botani-

cal heritage of Texas and is currently one of the most active plant collectors in the state.

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REFERENCES

Correll, D.S. and M.C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner.

Cronquist, A. 1980. Vascular flora of the southeast United States. Vol. 1. Asteraceae. Univ. North Carolina Press, Chapel Hill.

Diamond, D.D., D.H. Riskind, and S.L. Orzell. 1987. A framework for plant community classification and conservation in Texas. Texas J. Sci. 39:203–221.

Gandhi, K.N. and R.D. Thomas. 1989. Asteraceae of Louisiana. Sida, Bot. Misc. 4. Botanical Research Institute of Texas, Fort Worth.

Milstead, W.L. 1964. A revision of the North American species of *Prenanthes*. Unpub. dissertation, Purdue University.

Rao, R.R. and B. Datt. 1996. Diversity and phytogeography of Indian Compositae. In: D.J.N. Hind, ed.-in-chief, Composite: systematics. Proceeding of the international Compositae conference, Kew, 1994. Royal Botanic Gardens, Kew. Pp. 445–461.

Singhurst, J.R. 1996. The status of nine endangered plants of East Texas: historical, ecological and phytogeographical notes. Unpub. thesis, Stephen F. Austin University, Nacogdoches, Texas.

Smith, E.B. 1979. An atlas and annotated list of the vascular plants of Arkansas. Published by the author. Fayetteville.

Thomas, R.D. and C.A. Allen. 1996. Atlas of the vascular flora of Louisiana. Vol. II. Dicotyle-

dons. Acanthaceae–Euphorbiaceae. Louisiana Department of Wildlife and Fisheries Natural Heritage Program, Baton Rouge.

Turner, B.L., H. Nichols, G. Denny, and O. Doron. 2003. Atlas of the vascular plants of Texas. Sida, Bot. Misc. 24. Botanical Research Institute of Texas, Fort Worth.